Expressing tumour staging using the Read Thesaurus

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The expression of tumour staging is an important component of clinical care and the electronic capture of this data offers great potential. Version 3 of the Read Thesaurus includes a template table which offers a robust mechanism for applying specific staging detail to tumours within the clinical record.

INTRODUCTION

Tumour staging is important in both individual patient care and treatment trials. Any model of representation needs to cope unambiguously with the following potential problems:

- Tumours may need to be linked to more than one staging system
- The elements of the staging classification need to be linked securely to the tumour, particularly in circumstances where more than one primary neoplasm exists

Version 3 of the Read thesaurus (V3RT) [1] uses templates to create relationships between object concepts and qualifying detail and this mechanism has been used to apply a variety of tumour staging classifications.

TEMPLATE CONTENTS

The template mechanism is used to produce links between tumours and their appropriate staging classifications. The attribute **Staging** allows more than one system to be linked to a single tumour. For example a clinician may wish to stage carcinoma of prostate using both the TNM and American Urological Association classifications:

```
Carcinoma of prostate
  Staging
    TNM Prostate tumour staging
    American Urological Association staging system
```

The staging systems themselves have a number of attributes which qualify them and carry the detailed elements of the classification (Table 1). The edition of the classification is often important as the definition of the elements may differ between versions. Each attribute references a defined population of values. For example, the templates of TNM tumour staging of the prostate and bladder

each contain only those values applicable for tumour stage (Table 2).

Table 1 TNM Prostate tumour staging

Attribute	Value examples
Edition	1992
Tumour histopathological grade	Tumour grade GX
Tumour stage	Tumour stage T0
Regional lymph node stage	Node stage N0
Distant metastasis stage	Metastasis stage M1
UICC stage grouping	Stage 2

Table 2 Tumour stage values referenced in TNM staging for prostate and bladder

TNM classification	Tumour stage values
TNM Prostate tumour staging	TX, T0, T1, T1a, T1b, T1c, T2, T2a, T2b, T2c, T3, T3a, T3b, T3c, T4, T4a, T4b
TNM Urinary bladder tumour staging	TX, T0, Tis, Ta, T1, T2, T3, T3a, T3b, T3bi, T3bii, T4, T4a, T4b

APPLICATION

The expression of elements of tumour staging in templates in V3RT allows the representation of staging to more than one tumour within an individual (Table 3). The mechanism provides a workable solution to capture staging detail unambiguously linked to the tumour within records.

Table 3 Expression of tumour staging of prostate and bladder in a single record

```
Carcinoma of prostate
  Staging
    TNM Prostate tumour staging
      Tumour stage: T1a
      Regional lymph node stage: N0
      Distant metastasis stage: M0
      Tumour histopathological grade : G1
      UICC stage :  Stage 0
Carcinoma of bladder
  Staging
    TNM Urinary bladder tumour staging
      Tumour stage: T2
      Regional lymph node stage: N0
      Distant metastasis stage: M0
      UICC stage :  Stage 2
```

References
1. O'Neil MJ, Payne C, Read JD. Read Codes Version 3: A User Led Terminology. *Meth Inform Med* 1995; **34**: 187-192.